


INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/25290

A. CLASSIFICATION OF SUBJECT MATTER IPC(6) : G06F 13/00; H04B 1/38, 1/58 US CL : 710/104, 105, 107, 126, 129; 370/285, 464, 466; 375/220 According to International Patent Classification (IPC) or to both national classification and IPC														
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : Please See Extra Sheet. Documentation searched in addition to minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPAT, JPO, EPO, TDB														
C. DOCUMENTS CONSIDERED TO BE RELEVANT														
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.												
X, E	US 6,016,316 A (MOURA et al.) 18 January 2000, see entire document, especially Fig. 4, 9, 15, and 16.	30-41												
X	US 5,764,966 A (MOTE, JR.) 09 June 1998, see entire document, especially abstract and Fig. 1.	26-29												
X	US 5,659,707 A (WANG et al.) 19 August 1997, see entire document, especially col. 8, lines 29-65.	1-25												
X	US 5,799,207 A (WANG et al.) 25 August 1998, see entire document, especially Figures 4, and 11-13.	1-41												
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input type="checkbox"/> See patent family annex.														
<table border="0"><tr><td>* Special categories of cited documents:</td><td>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td></tr><tr><td>*A* document defining the general state of the art which is not considered to be of particular relevance</td><td>*X* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td></tr><tr><td>*B* earlier document published on or after the international filing date</td><td>*Y* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document combined with one or more other such documents, such combination being obvious to a person skilled in the art</td></tr><tr><td>*L* document which may throw doubts on priority claims or which is cited to establish the publication date of another citation or other special reason (as specified)</td><td>*A* document member of the same patent family</td></tr><tr><td>*O* document referring to an oral disclosure, use, exhibition or other means</td><td></td></tr><tr><td>*P* document published prior to the international filing date but later than the priority date claimed</td><td></td></tr></table>			* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	*B* earlier document published on or after the international filing date	*Y* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document combined with one or more other such documents, such combination being obvious to a person skilled in the art	*L* document which may throw doubts on priority claims or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family	*O* document referring to an oral disclosure, use, exhibition or other means		*P* document published prior to the international filing date but later than the priority date claimed	
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L document which may throw doubts on priority claims or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family													
O document referring to an oral disclosure, use, exhibition or other means														
P document published prior to the international filing date but later than the priority date claimed														
Date of the actual completion of the international search 27 JANUARY 2000		Date of mailing of the international search report 10 FEB 2000												
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer: THOMAS LEE  Telephone No. (703) 305-9717												

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 5,664,223 A (BENDER et al) 02 September 1997, see entire document, especially Figure 2.	1-41
X	US 5,235,595 A (O'DOWD) 10 August 1993, see entire document, especially Figures 1, 4, 12 and 13	1-41
X	US 5,812,534 A (DAVIS et al.) 22 September 1998, see entire document, especially Figure 15.	1-41
X	US 5,430,848 A (WAGGENER) 01 July 1995, see entire document, especially Figure 4.	1-41

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claim could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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B. FIELDS SEARCHED

Minimum documentation searched

Classification System: U.S.

710/52, 104, 105, 107, 110, 123, 126, 128, 129; 711/100, 145, 146; 713/400, 502; 370/260, 285, 351, 364, 464, 466, 474; 375/220, 359; 395/559

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-25, drawn to an interface apparatus for remote communication between two stations or terminals, classified in US Class 375, subclass 200 and in International Patent Class (IPC) [6] H04B 1/38.

Group II, claim(s) 26-29, drawn to system configuring for intrasystem bus connection, classified in US Class 710, subclass 104 and in IPC[6] G06F 13/00.

Group III, claim(s) 30-41, drawn to method of transmit/receive interaction control via bridges, classified in US Class 370, subclass 285 and in IPC[6] H04B 1/58.

The inventions listed as Groups I, II and III do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Inventions I, II, and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each if they are shown to be separately usable. In the instant case, invention I has separate utility such as an interface apparatus for remote-distance communication; invention II has separate utility such as an intrasystem configuration having a split data bus; invention III has separate utility such as transmitting/receiving packet data.

Because these invention are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, a finding of lack of unity on these inventions for search purposes as indicated is proper.